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FOREST AREA AND TIMBER RESOURCE STATISTICS FOR SOUTHEASTERN UTAH 1975-1976

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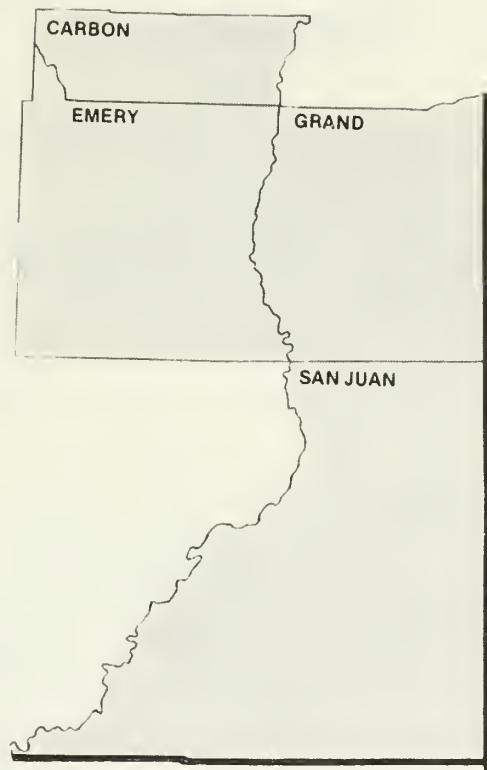
RESEARCH SUMMARY

Presents land area, commercial timberland area, timber inventory, and growth and mortality data based on Resources Evaluation standards.

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Southeastern Working Circle Utah



INTRODUCTION

A comprehensive timber resource study was conducted on public and private lands, except National Forest land, in Southeastern Utah in 1975-1976 by the Utah Department of Natural Resources, Division of State Lands and Forestry, in cooperation with the Division of State and Private Forestry, Forest Service, Region 4, and the Intermountain Forest and Range Experiment Station.

Southeastern Utah is comprised of Carbon, Emery, Grand, and San Juan Counties (fig. 1). The total land area is 11.1 million acres (4.5 million hectares). The Bureau of Land Management administers the largest portion of this land, 6.0 million acres (2.4 million hectares). The ownership of the remainder is Indian, 1.4 million acres (0.6 million hectares); private, 1.3 million acres (0.6 million hectares); State, 1.0 million acres (0.4 million hectares); Forest Service, 0.8 million acres (0.3 million hectares); and other public, 0.6 million acres (0.2 million hectares).

The data presented here are for public and private lands, BUT EXCLUDE NATIONAL FOREST OWNERSHIP.

UTAH

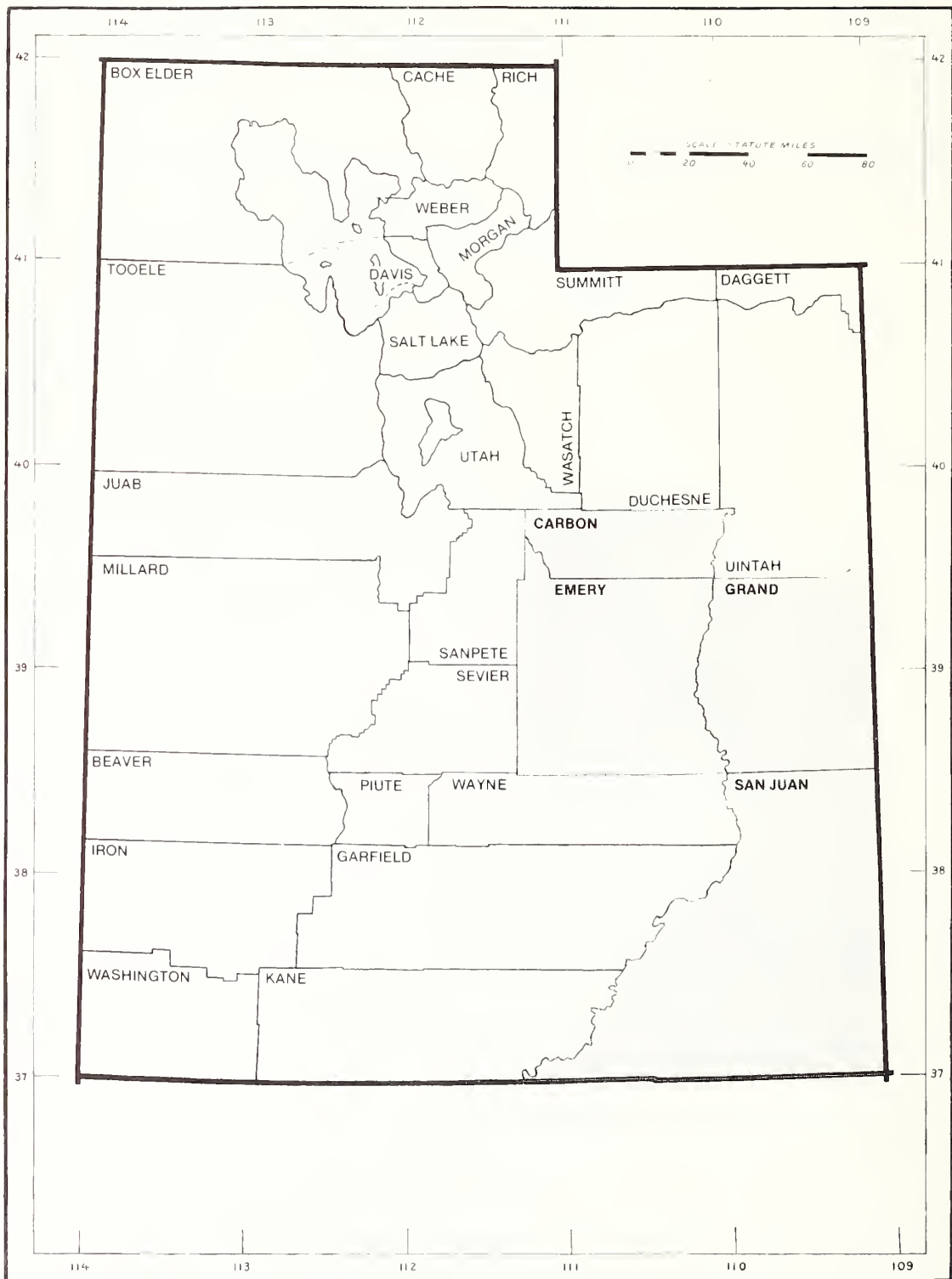


Figure 1.--Southeastern Utah counties, Carbon, Emery, Grand, and San Juan.

Highlights show the area of commercial timberland in comparison to total forest land area, and the distribution of this area by forest type, stand-size class, and site class. Discussions of the data reliability and terminology are included. These two items should be reviewed carefully when using this information.

HIGHLIGHTS

Area

- The forest land area is 2.7 million acres (1.1 million hectares), or 27 percent of the total public and private land area.
- Of the forest land, 253 thousand acres (103 thousand hectares) or about 9 percent is classified as commercial timberland.
- Public ownership accounts for 152 thousand acres (62 thousand hectares), or 60 percent, of the commercial timberland.
- Aspen forest type occupies 30 percent of the commercial timberland. Of this, 54 percent is privately owned.
- The predominant softwood forest types are Douglas-fir and ponderosa pine which together occupy 51 percent of the commercial timberland. The remaining area consists of spruce-subalpine fir, limber pine, pinyon-juniper¹, white fir, aspen, and a negligible amount of cottonwood.
- Sixty-nine percent of the commercial timberland is sawtimber stands; pole timber stands occupy 18 percent. The remaining 13 percent is in sapling and seedling stands or nonstocked.
- Nearly 64 percent of the sawtimber stands is in public ownership.
- Nearly 56 percent of the commercial timberland is in the 20 to 49 cubic-foot productivity class.

Inventory

- Growing stock volume amounts to 359 million cubic feet (10 million cubic meters) with 53 percent in softwood sawtimber trees.
- Rough, rotten, and salvable dead trees comprise 30 million cubic feet (1 million cubic meters), or about 8 percent, of the total sound wood volume.
- Eighty-four percent of the 1,246 million board feet² of sawtimber volume is in sawtimber trees less than 23.0 inches d.b.h.
- Aspen makes up 37 percent of the total growing stock volume.

¹The area occupied by pinyon-juniper forest type classified as commercial is so classified because the site index for other associated species in these stands (usually ponderosa pine or Douglas-fir) was high enough to produce 20 cubic feet per acre per year average annual growth, and nonstockable indicators were not present in sufficient quantities to lower yield capability below 20 cubic feet per acre per year. Although pinyon/juniper usually occurs on unproductive forest land, when it occurs in mixtures with other species on productive sites, it is reported in the commercial timberland statistics.

²International 1/4-inch rule.

● Douglas-fir (24 percent), subalpine fir (19 percent), and Engelmann spruce (9 percent) make up 52 percent of the total growing stock volume and 61 percent of the total sawtimber volume. Species sharing the remaining percentage are ponderosa pine, limber pine, pinyon/juniper, and white fir.

● Public owners control 53 percent of the growing stock volume and 57 percent of the sawtimber volume.

Growth and Mortality

● Net annual growth of growing stock totals 8,127 thousand cubic feet (230 thousand cubic meters) with 41 percent occurring in aspen species. Growth and mortality are not measured for pinyon and juniper trees.

● Net growth is divided equally between public and private owners.

● The annual mortality of 1,930 thousand cubic feet (55 thousand cubic meters) offsets 19 percent of the gross annual growth.

● Disease, insects, and weather account for 47 percent of the mortality. The remainder is caused by fire, animal, and unknown factors.

● Sixty-one percent of the mortality occurs in the aspen species.

DATA RELIABILITY

Individual cells within tables should be used with caution. Some are based on very small sample sizes, thus resulting in high sampling errors. The standard error percents shown in tables 1 and 2 were calculated at the 67 percent confidence level.

Table 1.--Area of forest land and percent standard error for Southeastern Utah, 1976

Item	Softwood types		Hardwood types		All types	
	: Acres	: Percent:	: Acres	: Percent:	: Acres	: Percent:
	: standard:	: error :	: standard:	: error :	: standard:	: error :
	:	:	:	:	:	:
Commercial timberland	176,550	10.7	76,831	17.4	253,381	8.3
Productive reserved	4,490	13.8	586	39.0	5,076	12.9
Other forest land:						
Unproductive reserved	61,596	3.7	139	69.4	61,735	3.7
Unproductive nonreserved	2,363,054	1.0	52,914	20.6	2,415,968	1.0

Table 2.--Net volume and net annual growth and annual mortality of growing stock and sawtimber on commercial timberland, with percent standard error for Southeastern Utah, 1976

Item	Softwoods		Hardwoods		All species	
	: Volume	: Percent:	: Volume	: Percent:	: Volume	: Percent:
	: standard:	: error :	: standard:	: error :	: standard:	: error :
	:	:	:	:	:	:
Net volume:						
Growing stock (M cubic feet)	224,989	11.8	133,886	14.9	358,875	9.5
Sawtimber (M board feet ¹)	940,634	12.9	305,002	21.1	1,245,636	11.3
Net annual growth:						
Growing stock (cubic feet)	4,813,086	13.3	3,313,572	19.6	8,126,658	11.3
Sawtimber (board feet ¹)	23,315,363	17.6	16,467,683	37.0	39,783,046	17.5
Annual mortality:						
Growing stock (cubic feet)	744,153	28.7	1,185,535	36.6	1,929,688	26.3
Sawtimber (board feet ¹)	2,804,768	28.9	2,324,739	54.4	5,129,507	30.9

¹International 1/4-inch rule.

TERMINOLOGY AND DATA TABLES

The following terminology section contains definitions taken directly from the Forest Service Forest Survey Handbook that are relevant to the timber resource data presented in this resource bulletin. Forest area and timber resource data for South-eastern Utah are displayed in tables 3 through 23.

TERMINOLOGY

Land

Bureau of the Census.--The area of dry land and land temporarily or partly covered by water, such as marshes, swamps, and river flood plains; streams, sloughs, estuaries, and canals less than 1/8 of a statute mile in width; and lakes, reservoirs, and ponds less than 40 acres in area.

Water

Census water.--As defined by the Bureau of the Census: streams, sloughs, estuaries, and canals more than 1/8 of a statute mile in width; and lakes, reservoirs, and ponds more than 40 acres in area.

Noncensus water.--The same as defined by the Bureau of the Census, except minimum width of streams, etc., is 120 feet and minimum size of lakes, etc., is 1 acre.

Land Use Classes

Forest land.--Land at least 16.7 percent stocked by forest trees of any size, or formerly having had such tree cover, and not currently developed for nonforest use.

Commercial timberland.--Forest land producing or capable of producing crops of industrial wood and not withdrawn from timber utilization. (Note: Areas qualifying have the capability of producing in excess of 20 feet per acre per year of industrial wood under management. Currently inaccessible and inoperable areas are included, except when the areas involved are small and unlikely to become suitable for production of industrial wood in the foreseeable future.)

Productive-reserved forest land.--Forest land sufficiently productive to qualify as commercial timberland, but withdrawn from timber utilization through statute, administrative designation, or exclusive use for Christmas tree production.

Other forest land.--(1) Forest land incapable of producing 20 cubic feet per acre of industrial wood under management, because of adverse site conditions;
(2) unproductive-reserved forest land.

Nonforest land.--Land that has never supported forests and lands formerly forested where use for timber management is precluded by development for other uses.

Public Ownership Classes

National Forest land.--Federal lands legally designated as National Forest or purchase units, and other lands under the administration of the Forest Service, including experimental areas and Bankhead-Jones Title III lands.

Bureau of Land Management lands.--Federal lands administered by the Bureau of Land Management.

Indian lands.--Tribal lands held in fee by the Federal Government, but administered for Indian tribal groups and Indian trust allotments.

Miscellaneous Federal lands.--Federal lands other than the following: (1) National Forest lands; (2) lands administered by the Bureau of Land Management; and (3) Indian lands.

State.--Lands owned by States, or lands leased to these governmental units for 50 years or more.

County and municipal lands.--Lands owned by counties and local public agencies or municipalities, or lands leased to these governmental units for 50 years or more.

Private Ownership Classes

Forest industry lands.--Lands owned by companies or individuals operating wood-using plants.

Farmer-owned lands.--Lands owned by farm operators. (Note: These exclude lands leased by farm operators from nonfarm owners, such as railroad companies and States.)

Miscellaneous private lands.--Privately owned lands other than forest industry and farmer-owned lands.

Forest Type and Tree Species

Forest types.--A classification of forest land based upon the species forming a plurality of live-tree stocking.

Forest trees.--Woody plants having a well-developed stem and usually more than 12 feet in height at maturity.

Commercial species.--Tree species presently or prospectively suitable for industrial wood products.

Softwoods.--Coniferous trees, usually evergreen, having needles or scalelike leaves.

Hardwoods.--Dicotyledonous trees, usually broad-leaved and deciduous.

Area Condition Classes

Stocking.--Stocking is an effort to express the extent to which growing space is effectively utilized by present or potential growing stock trees or commercial species. "Percent of stocking" is synonymous with "percentage of growing space occupied" and means the ratio of actual stocking to full stocking for comparable sites and stands. Basal area is used as a basis for measuring stocking.

"Stocking percentages" express current area occupancy in relation to specified standards for full stocking based on number, size, and spacing of trees considered necessary to fully utilize the forest land.

Full utilization of the site is assumed to occur over a range of basal area. As an interim guide, 60 percent of the normal yield table values has been used to establish the lower limit of this range which represents full-site occupancy. This is called 100-percent stocking. The upper limit of full stocking has been set at 132 percent. Sites with less than 100-percent stocking represent understocking with less than full-site occupancy. Overstocking is characterized by sites with over 133-percent stocking.

Class 10.--Area fully stocked (100-132 percent) with desirable trees and not overstocked (133 percent or more).

Class 20.--Area fully stocked with desirable trees, but overstocked with all live trees.

Class 30.--Areas medium to fully stocked (60-99 percent) with desirable trees and with less than 30 percent of the area controlled by other trees and (or) inhibiting vegetation or surface conditions that will prevent occupancy by desirable trees.

Class 40.--Areas medium to fully stocked with desirable trees and with 30 percent or more of the area controlled by other trees and (or) conditions that ordinarily prevent occupancy by desirable trees.

Class 50.--Areas poorly stocked (16.7-59 percent) with desirable trees, but fully stocked with growing stock trees.

Class 60.--Areas poorly stocked with desirable trees, but with medium to full stocking of growing stock trees.

Class 70.--Areas nonstocked (less than 16.7 percent) or poorly stocked with desirable trees, and poorly stocked with growing stock trees.

Class 80.--Low-risk old-growth stands.

Class 90.--High-risk old-growth stands.

Nonstocked.--Areas less than 16.7 percent stocked with growing stock trees.

Class of Timber

Growing stock trees.--Live trees of commercial species qualifying as desirable or acceptable trees. (Note: Excludes rough, rotten, and dead trees.)

Desirable trees.--Growing stock trees (a) having no serious defect in quality limiting present or prospective use for timber products; (b) of relatively high vigor; and (c) containing no pathogens that may result in death or serious deterioration before rotation age.

Acceptable trees.--Growing stock trees that meet specified standards of size and quality, but not qualifying as desirable trees.

Rough trees.--(1) Live trees (commercial species) that do not contain at least one 12-foot saw log or two noncontiguous saw logs, each 8 feet long or longer, now or prospectively, and (or) do not meet Rocky Mountain Regional specifications for freedom from defect primarily because of roughness or poor form; (2) all live trees of noncommercial species.

Rotten trees.--Live trees that do not contain at least one 12-foot saw log or two noncontiguous saw logs, each 8 feet long or longer, now or prospectively, and (or) do not meet Rocky Mountain Regional specifications for freedom from defect primarily because of rot; that is, when more than 50 percent of the cull volume (cubic-foot basis) in a tree is rotten.

Cull.--Portions of a tree that are unusable for industrial wood products because of rot, form, or other defect.

Salvable dead trees.--Standing or down dead trees that are considered merchantable by Rocky Mountain Regional standards.

Mortality trees.--Trees formerly growing stock dying from natural causes during a specified period, usually annually.

Saw log portion.--That part of the bole of sawtimber trees between the stump and the saw log top. A 1-foot stump is used.

Upper-stem portion.--That part of the bole of sawtimber trees above the saw log top to a minimum top diameter of 4.0 inches outside bark or to the point where the central stem breaks into limbs, whichever occurs first.

Tree Size Classes

Seedlings.--Live trees less than 1.0 inch in diameter at breast height.

Saplings.--Trees 1.0-4.9 inches in diameter at breast height.

Poletimber trees.--Trees at least 5.0 inches in d.b.h., but smaller than sawtimber size.

Sawtimber trees.--Trees exceeding poletimber size. In the Intermountain States, the minimum d.b.h. for softwood sawtimber is 9.0 inches, and 11.0 inches for hardwoods.

Volume

Net volume.--Gross volume less deductions for rot, sweep, or other defect affecting use for timber products.

Growing stock volume.--Net volume in cubic feet of live sawtimber trees and live poletimber trees from stump to a minimum 4.0-inch top (of central stem) outside bark. Net volume equals gross volume less deduction for rot and missing bole sections.

Sawtimber volume.--Net volume in board feet of sawtimber trees of commercial species. Net volume equals gross volume less deduction for rot, sweep, crook, and other defects that affect use for lumber.

Growth and Mortality

Net annual growth.--The increase in net growing stock volume of a specified size class for a specific year. (Note: Components of net annual growth include the increment in net volume of trees at the beginning of the specific year surviving to its end, plus net volume of trees reaching the size class during the year, minus the net volume of trees that died during the year, minus the net volume of trees that became rough or rotten trees during the year.)

Mortality.--Number or sound-wood volume of growing stock trees dying from natural causes during a specified period.

Site

Site class.--A classification of forest land in terms of inherent capacity to grow crops of industrial wood.

Site classifications are based upon the mean net annual growth of growing stock (not including thinnings or mortality loss) attainable at culmination of mean net annual growth over age. Height-age relationships are usually used as indicators of the specified volume-site class.

Stand-Size Classes

Sawtimber stands.--Stands at least 16.7 percent stocked with growing stock trees, with half or more of total stocking in sawtimber or poletimber trees, and with sawtimber stocking at least equal to poletimber stocking.

Poletimber stands.--Stands at least 16.7 percent stocked with growing stock trees in which half or more of this stocking is in poletimber and (or) sawtimber trees, and with poletimber stocking exceeding that of sawtimber.

Sapling-seedling stands.--Stands at least 16.7 percent stocked with growing stock trees in which more than half of the stocking is saplings and (or) seedlings.

Nonstocked land.--Commercial timberland less than 16.7 percent stocked with growing stock trees.

Table 3.--*Total area in Southeastern Utah by ownership class, 1976*

Ownership class	Acres	Hectares
National Forest	750,382	303,670
Bureau of Land Management	5,990,810	2,424,405
Indian	1,407,126	569,446
Miscellaneous Federal	568,889	230,222
State	1,048,274	424,223
County and municipal	922	373
Private	1,308,605	529,576
Total land area	11,075,008	4,481,915
Census water	156,992	63,533
Gross area¹	11,232,000	4,545,448

¹U.S. Bureau of the Census, land and water area of the United States, 1970.

Table 4.--*Land area in Southeastern Utah by major land class and ownership class, 1976*

Land class	Ownership class			
	Public		Private	
	Acres	Hectares	Acres	Hectares
Commercial timberland	152,099	61,553	101,282	40,987
Productive reserved	5,076	2,054	--	--
Other forest land:				
Unproductive reserved	61,735	24,983	--	--
Unproductive nonreserved	2,172,759	879,288	243,209	98,424
Total forest land	2,391,669	967,878	344,491	139,411
Nonforest land	6,624,352	2,680,791	964,114	390,165
Total land area	9,016,021	3,648,669	1,308,605	529,576

Table 5.--Area of commercial timberland in Southeastern Utah by forest type, stand-size class, and site class, public owned, 1976

Forest type and stand-size class	Site class					Total acres
	165+	120-164	85-119	50-84	20-49	
----- Acres -----						
Douglas-fir:						
Sawtimber	--	--	--	10,946	35,213	46,159
Poletimber	--	--	--	--	917	917
Sapling and seedling	--	--	--	1,912	4,039	5,951
Nonstocked	--	--	--	--	--	--
Total	--	--	--	12,858	40,169	53,027
Ponderosa pine:						
Sawtimber	--	--	--	1,950	26,760	28,710
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	5,990	995	6,985
Total	--	--	--	7,940	27,755	35,695
Limber pine:						
Sawtimber	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	5,990	5,990
Total	--	--	--	--	5,990	5,990
Spruce-subalpine fir:						
Sawtimber	--	--	9,435	5,171	--	14,606
Poletimber	--	--	1,912	1,951	--	3,863
Sapling and seedling	--	--	--	554	--	554
Nonstocked	--	--	--	--	--	--
Total	--	--	11,347	7,676	--	19,023
White fir:						
Sawtimber	--	--	--	1,451	--	1,451
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	--	1,451	--	1,451
Pinyon-juniper:						
Sawtimber	--	--	--	--	1,910	1,910
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	--	--	1,910	1,910
Aspen:						
Sawtimber	--	--	1,141	14,919	3,091	19,151
Poletimber	--	--	1,557	5,491	7,102	14,150
Sapling and seedling	--	--	--	--	1,179	1,179
Nonstocked	--	--	--	--	461	461
Total	--	--	2,698	20,410	11,833	34,941
Cottonwood:						
Sawtimber	--	--	--	--	62	62
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	--	--	62	62
All types:						
Sawtimber	--	--	10,576	34,437	67,036	112,049
Poletimber	--	--	3,469	7,442	8,019	18,930
Sapling and seedling	--	--	--	2,466	5,218	7,684
Nonstocked	--	--	--	5,990	7,446	13,436
Total	--	--	14,045	50,335	87,719	152,099

Table 6.--Area of commercial timberland in Southeastern Utah by forest type, stand-size class, and site class, private owned, 1976

Forest type and stand-size class	Site class					Total : acres
	: 165+	: 120-164	: 85-119	: 50-84	: 20-49	
----- Acres -----						
Douglas-fir:						
Sawtimber	--	--	--	7,844	15,716	23,560
Poletimber	--	--	--	--	1,124	1,124
Sapling and seedling	--	--	--	874	2,875	3,749
Nonstocked	--	--	--	--	--	--
Total	--	--	--	8,718	19,715	28,433
Ponderosa pine:						
Sawtimber	--	--	--	1,160	8,167	9,327
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	1,259	712	1,971
Total	--	--	--	2,419	8,879	11,298
Limber pine:						
Sawtimber	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	1,259	1,259
Total	--	--	--	--	1,259	1,259
Spruce-subalpine fir:						
Sawtimber	--	--	6,876	6,426	--	13,302
Poletimber	--	--	875	1,159	--	2,034
Sapling and seedling	--	--	--	1,107	--	1,107
Nonstocked	--	--	--	--	--	--
Total	--	--	7,751	8,692	--	16,443
White fir:						
Sawtimber	--	--	--	1,124	--	1,124
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	--	1,124	--	1,124
Pinyon-juniper:						
Sawtimber	--	--	--	--	897	897
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	--	--	897	897
Aspen:						
Sawtimber	--	--	894	6,504	7,413	14,811
Poletimber	--	--	2,411	8,621	12,526	23,558
Sapling and seedling	--	--	--	--	2,670	2,670
Nonstocked	--	--	--	--	711	711
Total	--	--	3,305	15,125	23,320	41,750
Cottonwood:						
Sawtimber	--	--	--	--	78	78
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	--	--	78	78
All types:						
Sawtimber	--	--	7,770	23,058	32,271	63,099
Poletimber	--	--	3,286	9,780	13,650	26,716
Sapling and seedling	--	--	--	1,981	5,545	7,526
Nonstocked	--	--	--	1,259	2,682	3,941
Total	--	--	11,056	36,078	54,148	101,282

Table 7.--Area of commercial timberland in Southeastern Utah by forest type, stand-size class, and site class, summary--public and private, 1976

Forest type and stand-size class	Site class					Total acres
	165+	120-164	85-119	50-84	20-49	
----- Acres -----						
Douglas-fir:						
Sawtimber	--	--	--	18,790	50,929	69,719
Poletimber	--	--	--	--	2,041	2,041
Sapling and seedling	--	--	--	2,786	6,914	9,700
Nonstocked	--	--	--	--	--	--
Total	--	--	--	21,576	59,884	81,460
Ponderosa pine:						
Sawtimber	--	--	--	3,110	34,927	38,037
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	7,249	1,707	8,956
Total	--	--	--	10,359	36,634	46,993
Limber pine:						
Sawtimber	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	7,249	7,249
Total	--	--	--	--	7,249	7,249
Spruce-subalpine fir:						
Sawtimber	--	--	16,311	11,597	--	27,908
Poletimber	--	--	2,787	3,110	--	5,897
Sapling and seedling	--	--	--	1,661	--	1,661
Nonstocked	--	--	--	--	--	--
Total	--	--	19,098	16,368	--	35,466
White fir:						
Sawtimber	--	--	--	2,575	--	2,575
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	--	2,575	--	2,575
Pinyon-juniper:						
Sawtimber	--	--	--	--	2,807	2,807
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	--	--	2,807	2,807
Aspen:						
Sawtimber	--	--	2,035	21,423	10,504	33,962
Poletimber	--	--	3,968	14,112	19,628	37,708
Sapling and seedling	--	--	--	--	3,849	3,849
Nonstocked	--	--	--	--	1,172	1,172
Total	--	--	6,003	35,535	35,153	76,691
Cottonwood:						
Sawtimber	--	--	--	--	140	140
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	--	--	140	140
All types:						
Sawtimber	--	--	18,346	57,495	99,307	175,148
Poletimber	--	--	6,755	17,222	21,669	45,646
Sapling and seedling	--	--	--	4,447	10,763	15,210
Nonstocked	--	--	--	7,249	10,128	17,377
Total	--	--	25,101	86,413	141,867	253,381

Table 8.--Area of commercial timberland in Southeastern Utah
by stand volume and ownership classes, 1976

Stand volume per acre ¹	Ownership class		
	Public	Private	Public and private
	Acres		
Less than 1,500 board feet	26,218	19,992	46,210
1,500 to 4,999 board feet	70,268	39,915	110,183
5,000 to 9,999 board feet	39,457	24,144	63,601
10,000 board feet or more	16,156	17,231	33,387
All classes	152,099	101,282	253,381

¹International 1/4-inch rule.

Table 9.--Area of commercial timberland in Southeastern Utah by forest type and area condition class; public and private, 1976

Forest type	Area condition class										Nonstocked	All classes
	10	20	30	40	50	60	70	80	90			
	Acres											Hectares
Douglas-fir	--	1,404	6,628	--	5,594	21,667	13,510	9,314	23,343	--	81,460	32,966
Ponderosa pine	--	--	--	--	--	9,011	17,284	--	11,742	8,956	46,993	19,017
Limber pine	--	--	--	--	--	--	--	--	--	7,249	7,249	2,933
Spruce-subalpine fir	--	1,660	11,353	--	3,064	14,567	--	4,822	--	--	35,466	14,353
White fir	--	--	--	--	2,575	--	--	--	--	--	2,575	1,042
Pinyon-juniper	--	--	--	--	--	--	1,403	--	1,404	--	2,807	1,136
Aspen	--	--	9,661	--	27,604	21,678	12,140	--	4,436	1,172	76,691	31,036
Cottonwood	--	--	--	--	140	--	--	--	--	--	140	57
All types	--	3,064	27,642	--	38,977	66,923	44,337	14,136	40,925	17,377	253,381	102,540

Table 10.--Area of productive reserved and other forest land in Southeastern Utah by land class, ownership class, and forest type, 1976

Land class	Forest type										All types
	Douglas-fir	Ponderosa pine	Limber pine	Spruce-subalpine fir	White fir	Pinyon-juniper	Mixed softwoods	Aspen	Cottonwood	Mixed hardwoods	
											Hectares
Productive reserved area:											
Public	2,302	1,083	88	886	110	21	--	586	--	--	2,054
Private	--	--	--	--	--	--	--	--	--	--	--
Other forest land area:											
Unproductive nonreserved:											
Public	6,985	5,990	5,990	5,990	--	2,124,410	955	12,862	2,900	6,677	879,288
Private	1,970	1,259	1,259	1,259	--	206,538	449	23,410	4,165	2,900	98,424
Unproductive reserved:											
Public	197	88	87	88	--	61,126	10	34	17	88	24,983
Private	--	--	--	--	--	--	--	--	--	--	--
Total all areas:											
Public	9,484	7,161	6,165	6,964	110	2,185,557	965	13,482	2,917	6,765	906,325
Private	1,970	1,259	1,259	1,259	--	206,538	449	23,410	4,165	2,900	98,424
Total acres	11,454	8,420	7,424	8,223	110	2,392,095	1,414	36,892	7,082	9,665	2,482,779
Total hectares	4,635	3,407	3,004	3,328	45	968,051	572	14,930	2,866	3,911	1,004,749

Table 11.--Number of growing stock trees on commercial timberland in Southeastern Utah by species and diameter class; public and private, 1976

Species	Diameter class (inches at breast height)																
	1.0- 2.9	3.0- 4.9	5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 22.9	23.0- 24.9	25.0- 26.9	27.0- 28.9	29.0- 30.9	31.0- 32.9	All classes
Thousand trees																	
Douglas-fir	4,691	3,025	2,279	1,573	1,202	904	785	344	198	106	55	63	16	8	24	15,273	
Ponderosa pine	697	900	322	490	254	155	146	98	60	42	72	18	32	17	18	3,521	
Limber pine	--	84	71	17	--	28	46	6	12	3	2	--	--	--	--	269	
Subalpine fir	5,975	4,687	2,848	1,470	714	587	432	271	95	54	51	26	10	6	3	17,229	
White fir	647	381	112	139	153	53	46	14	9	--	3	3	--	1	--	1,561	
Engelmann spruce	638	790	812	528	252	118	70	30	71	22	30	20	26	10	9	3,426	
Pinyon/juniper	219	478	555	172	149	74	33	34	140	25	2	10	--	13	18	1,922	
Total softwoods	12,867	10,345	6,999	4,389	2,724	1,919	1,558	797	585	252	215	140	84	55	72	43,001	
Aspen	5,626	9,486	7,650	4,023	3,137	1,552	721	259	48	6	1	3	(1)	--	--	32,512	
Cottonwood	--	--	--	4	1	3	5	3	1	2	(1)	--	--	--	(1)	19	
Total hardwoods	5,626	9,486	7,650	4,027	3,138	1,555	726	262	49	8	1	3	(1)	--	(1)	32,531	
All species	18,493	19,831	14,649	8,416	5,862	3,474	2,284	1,059	634	260	216	143	84	55	72	75,532	

¹Less than 0.5 thousand trees.

Table 12.--Number of cull and salvageable dead trees on commercial timberland in Southeastern Utah by ownership class, and softwoods and hardwoods, 1976

Ownership class and species group	Cull trees		Salvageable	
	Sound	Rotten	Total	dead trees
Thousand trees				
Public:				
Softwoods	2,240	166	2,406	821
Hardwoods	1,261	355	1,616	823
Total	3,501	521	4,022	1,644
Private:				
Softwoods	1,351	80	1,431	527
Hardwoods	1,518	556	2,074	1,052
Total	2,869	636	3,505	1,579
Public and private:				
Softwoods	3,591	246	3,837	1,348
Hardwoods	2,779	911	3,690	1,875
Total	6,370	1,157	7,527	3,223

Table 13.--Net volume of growing stock on commercial timberland in Southeastern Utah
by ownership class, forest type, and stand-size class, 1976

Ownership class:	Forest type	Stand-size class				All classes			
		Sawtimber	Poletimber	Sapling/seedling	Nonstocked				
Public:		-	-	-	-	-	-	-	Thousand cubic meters
	Douglas-fir	54,761	785	2,263	--	57,809	1,637		
	Ponderosa pine	18,086	--	--	2,270	20,356	576		
	Limber pine	--	--	--	307	307	8		
	Spruce-subalpine fir	46,048	9,085	171	--	55,304	1,566		
	White fir	1,954	--	--	--	1,954	55		
	Pinyon-juniper	907	--	--	--	907	26		
	Aspen	34,614	19,963	187	132	54,896	1,555		
	Cottonwood	202	--	--	--	202	6		
	All types	156,572	29,833	2,621	2,709	191,735	5,429		
Private:	Douglas-fir	31,793	966	1,599	--	34,358	973		
	Ponderosa pine	6,536	--	--	506	7,042	200		
	Limber pine	--	--	--	65	65	2		
	Spruce-subalpine fir	38,586	4,668	341	--	43,595	1,234		
	White fir	1,543	--	--	--	1,543	44		
	Pinyon-juniper	425	--	--	--	425	12		
	Aspen	39,784	39,425	441	204	79,854	2,261		
	Cottonwood	258	--	--	--	258	7		
	All types	118,925	45,059	2,381	775	167,140	4,733		
	Public and private:	Douglas-fir	86,554	1,751	3,862	--	92,167	2,610	
Ponderosa pine		24,622	--	--	2,776	27,398	776		
Limber pine		--	--	--	372	372	10		
Spruce-subalpine fir		84,634	13,753	512	--	98,899	2,800		
White fir		3,497	--	--	--	3,497	99		
Pinyon-juniper		1,332	--	--	--	1,332	38		
Aspen		74,398	59,388	628	336	134,750	3,816		
Cottonwood		460	--	--	--	460	13		
All types		275,497	74,892	5,002	3,484	358,875	10,162		

Table 14.--Net volume of sawtimber on commercial timberland in Southeastern Utah by ownership class, forest type, and stand-size class, 1976

Ownership class:	Forest type	Stand-size class			All classes
		Sawtimber	Poletimber	Sapling/seedling: Nonstocked	
		-	-	-	-
		Thousand board feet ¹			
Public:					
	Douglas-fir	223,112	1,845	6,219	231,176
	Ponderosa pine	84,855	--	--	98,575
	Limber pine	--	--	--	1,790
	Spruce-subalpine fir	190,042	12,364	--	202,406
	White fir	7,194	--	--	7,194
	Pinyon-juniper	3,538	--	--	3,538
	Aspen	131,879	33,372	484	166,320
	Cottonwood	1,056	--	--	1,056
	All types	641,676	47,581	6,703	712,055
Private:					
	Douglas-fir	123,246	2,322	5,267	130,835
	Ponderosa pine	29,600	--	--	32,625
	Limber pine	--	--	--	376
	Spruce-subalpine fir	146,700	6,468	--	153,168
	White fir	5,643	--	--	5,643
	Pinyon-juniper	1,661	--	--	1,661
	Aspen	140,956	64,860	1,210	207,930
	Cottonwood	1,343	--	--	1,343
	All types	449,149	73,650	6,477	533,581
Public and private:					
	Douglas-fir	346,358	4,167	11,486	362,011
	Ponderosa pine	114,455	--	--	131,200
	Limber pine	--	--	--	2,166
	Spruce-subalpine fir	336,742	18,832	--	355,574
	White fir	12,837	--	--	12,837
	Pinyon-juniper	5,199	--	--	5,199
	Aspen	272,835	98,232	1,694	374,250
	Cottonwood	2,399	--	--	2,399
	All types	1,090,825	121,231	13,180	1,245,636

¹ International 1/4-inch rule.

Table 15.--Net volume of growing stock on commercial timberland in Southeastern Utah by species and diameter class; public and private, 1976

Species	Diameter class (inches at breast height)															All classes
	5.0- 6.9	7.0- 8.9	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 22.9	23.0- 24.9	25.0- 26.9	27.0- 28.9	29.0+ 30.9	31.0- 32.9	33.0- 34.9	
	Thousand cubic feet															
Douglas-fir	3,910	7,129	10,912	12,864	15,706	9,882	7,178	4,821	3,221	4,339	1,074	818	3,297	85,151		
Ponderosa pine	769	1,894	1,615	2,140	2,469	2,665	2,122	1,859	3,921	1,256	3,211	2,024	3,173	29,118		
Limber pine	102	65	--	311	698	99	271	67	117	--	--	--	--	1,730		
Subalpine fir	5,953	8,815	8,248	9,516	10,076	8,889	4,340	3,120	3,415	2,357	1,011	767	430	66,937		
White fir	189	472	1,096	520	822	324	275	--	143	183	--	120	--	4,144		
Engelmann spruce	2,218	3,072	2,881	2,066	2,209	1,414	4,933	1,817	2,799	2,576	3,761	1,642	1,856	33,244		
Pinyon/juniper	114	315	454	197	152	353	1,683	270	35	160	--	330	602	4,665		
Total softwoods	13,255	21,762	25,206	27,614	32,132	23,626	20,802	11,954	13,651	10,871	9,057	5,701	9,358	224,989		
Aspen	17,449	24,656	35,675	28,066	17,376	7,951	1,887	233	12	149	13	--	--	133,467		
Cottonwood	--	12	8	68	113	77	48	62	21	--	--	--	10	419		
Total hardwoods	17,449	24,668	35,683	28,134	17,489	8,028	1,935	295	33	149	13	--	10	133,886		
All species	30,704	46,430	60,889	55,748	49,621	31,654	22,737	12,249	13,684	11,020	9,070	5,701	9,368	358,875		

Table 16.--Net volume of sawtimber on commercial timberland in Southeastern Utah by species and diameter class; public and private, 1978

Species	Diameter class (inches at breast height)												All classes
	9.0- 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 22.9	23.0- 24.9	25.0- 26.9	27.0- 28.9	29.0+ :		
----- Thousand board feet, International 1/4-inch rule -----													
Douglas-fir	35,782	55,279	76,066	51,347	38,881	26,836	18,253	24,898	6,206	4,744	19,284	357,576	
Ponderosa pine	5,912	10,147	12,616	14,615	12,091	10,815	23,263	7,521	19,449	12,320	19,688	148,437	
Limber pine	--	1,272	3,231	483	1,372	347	627	--	--	--	--	7,332	
Subalpine fir	34,956	46,581	51,519	45,810	22,307	16,018	17,635	12,289	5,345	4,096	2,342	258,898	
White fir	4,227	2,280	3,758	1,476	1,195	--	586	721	--	473	--	14,716	
Engelmann spruce	11,954	9,941	11,346	7,340	25,543	9,381	14,477	13,401	19,763	8,699	9,925	141,770	
Pinyon/juniper	1,361	588	441	996	4,649	733	95	440	--	921	1,681	11,905	
Total softwoods	94,192	126,088	158,977	122,067	106,038	64,130	74,936	59,270	50,763	31,253	52,920	940,634	
Aspen	0	148,440	96,992	44,732	10,460	1,267	66	783	69	--	--	302,809	
Cottonwood	0	362	633	436	266	334	111	--	--	--	51	2,193	
Total hardwoods	0	148,802	97,625	45,168	10,726	1,601	177	783	69	--	51	305,002	
All species	94,192	274,890	256,602	167,235	116,764	65,731	75,113	60,053	50,832	31,253	52,971	1,245,636	

Table 17.--Net volume of growing stock and sawtimber on commercial timberland in Southeastern Utah by ownership class and species, 1976

Ownership class:	Species											
	Ponderosa: Douglas-fir:	Limber: pine	Subalpine: fir	White fir:	Engelmann: spruce	Pinyon: juniper:	Total softwoods:	Cottonwood:	Total hardwoods:	All species		
	GROWING STOCK											
	Thousand cubic feet											
Public	54,336	20,419	1,042	35,884	2,441	21,499	3,743	139,364	52,187	184	52,371	191,735
Private	30,815	8,699	688	31,053	1,703	11,745	922	85,625	81,280	235	81,515	167,140
Total	85,151	29,118	1,730	66,937	4,144	33,244	4,665	224,989	133,467	419	133,886	358,875
	GROWING STOCK											
	Thousand cubic meters											
Public	1,538	578	30	1,016	69	609	106	3,946	1,478	5	1,483	5,429
Private	873	247	19	880	48	332	26	2,425	2,301	7	2,308	4,733
Total	2,411	825	49	1,896	117	941	132	6,371	3,779	12	3,791	10,162
	SAWTIMBER											
	Thousand board feet, International 1/4-inch rule											
Public	233,171	103,879	4,427	138,068	8,669	91,964	9,594	589,772	121,318	965	122,283	712,055
Private	124,405	44,558	2,905	120,830	6,047	49,806	2,311	350,862	181,491	1,228	182,719	535,581
Total	357,576	148,437	7,332	258,898	14,716	141,770	11,905	940,634	302,809	2,193	305,002	1,245,636

Table 21.--Net annual growth of growing stock and sawtimber on commercial timberland in Southeastern Utah by ownership class and species, 1976

Ownership class:	Species						
	Ponderosa : Douglas-fir : pine : fir :	Subalpine : white fir : pine : fir :	Engelmann : spruce : fir :	Total : softwoods :	Aspen : hardwoods :	Cottonwood : hardwoods :	Total : All species
GROWING STOCK							
Cubic feet							
Public	861,875	502,550	14,003	1,014,053	57,724	444,440	2,894,645
Private	532,256	185,129	9,373	904,084	37,255	250,344	1,918,441
Total	1,394,131	687,679	23,376	1,918,137	94,979	694,784	4,813,086
GROWING STOCK							
Cubic meters							
Public	24,405	14,231	397	28,715	1,634	12,585	81,967
Private	15,072	5,242	265	25,601	1,055	7,089	54,324
Total	39,477	19,473	662	54,316	2,689	19,674	136,291
SAWTIMBER							
Board feet, International 1/4-inch rule							
Public	3,856,027	2,960,330	69,147	5,328,929	762,671	1,732,451	14,709,555
Private	2,329,546	991,480	45,423	3,468,683	476,108	1,294,568	8,605,808
Total	6,185,573	3,951,810	114,570	8,797,612	1,238,779	3,027,019	23,315,363
					16,415,598	52,085	16,467,683
							39,783,046

Table 22.--Annual mortality of growing stock and sawtimber on commercial timberland in Southeastern Utah by ownership class, and softwoods and hardwoods, 1976

Species group and ownership class :	Growing stock		Sawtimber	
	- Cubic feet -	- Cubic meters -	- Board feet -	- Board feet -
Softwoods:				
Public	427,449	12,104	1,607,699	
Private	316,704	8,968	1,197,069	
Total	744,153	21,072	2,804,768	
Hardwoods:				
Public	634,541	17,968	1,453,715	
Private	550,994	15,603	871,024	
Total	1,185,535	33,571	2,324,739	

¹International 1/4-inch rule.

Table 23.--Annual mortality of growing stock and sawtimber on commercial timberland in Southeastern Utah by cause of death and species; public and private, 1978

Cause of death	Species						All species
	Douglas-fir	Ponderosa pine	Subalpine fir	White fir	Engelmann spruce	Total softwoods	
				GROWING STOCK			
				Cubic feet			
Insects	166,522	--	87,202	--	--	253,724	253,724
Disease	62,567	--	28,611	--	--	91,178	510,846
Fire	12,250	48,195	--	--	--	60,445	60,445
Animal	--	--	8,919	--	--	8,919	34,860
Weather	18,380	--	18,498	--	--	36,878	111,185
Suppression	--	--	--	--	--	--	--
Unknown	100,600	--	135,066	13,570	43,773	293,009	619,822
Logging	--	--	--	--	--	--	--
Total	360,319	48,195	278,296	13,570	43,773	744,153	1,185,535
							1,929,688
				GROWING STOCK			
				Cubic meters			
Insects	4,716	--	2,469	--	--	7,185	7,185
Disease	1,771	--	810	--	--	2,581	14,465
Fire	347	1,365	--	--	--	1,712	1,712
Animal	--	--	253	--	--	253	987
Weather	520	--	524	--	--	1,044	3,149
Suppression	--	--	--	--	--	--	--
Unknown	2,849	--	3,824	384	1,240	8,297	17,551
Logging	--	--	--	--	--	--	--
Total	10,203	1,365	7,880	384	1,240	21,072	33,571
							54,643
				SAWTIMBER			
				Board feet, International 1/4-inch rule			
Insects	612,302	--	425,638	--	--	1,037,940	1,037,940
Disease	225,555	--	--	--	--	225,555	1,653,390
Fire	59,455	290,462	--	--	--	349,917	349,917
Animal	--	--	--	--	--	--	--
Weather	--	--	95,087	--	--	95,087	615,907
Suppression	--	--	--	--	--	--	--
Unknown	365,031	--	534,401	62,222	134,615	1,096,269	280,997
Logging	--	--	--	--	--	--	--
Total	1,262,343	290,462	1,055,126	62,222	134,615	2,804,768	2,324,739
							5,129,507

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1979. Forest area and timber resource statistics for Southeastern Utah, 1975-1976. USDA For. Serv. Resour. Bull. INT-15, 23 p. Intermt. For. and Range Exp. Stn., Ogden, Utah 84401.

Presents land area, commercial timberland area, timber inventory, and growth and mortality data based on Resources Evaluation standards.

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KEYWORDS: forest surveys (regional), forest area classification, stand volume.

The Intermountain Station, headquartered in Ogden, Utah, is one of eight regional experiment stations charged with providing scientific knowledge to help resource managers meet human needs and protect forest and range ecosystems.

The Intermountain Station includes the States of Montana, Idaho, Utah, Nevada, and western Wyoming. About 273 million acres, or 85 percent, of the land area in the Station territory are classified as forest and rangeland. These lands include grasslands, deserts, shrublands, alpine areas, and well-stocked forests. They supply fiber for forest industries; minerals for energy and industrial development; and water for domestic and industrial consumption. They also provide recreation opportunities for millions of visitors each year.

Field programs and research work units of the Station are maintained in:

Boise, Idaho

Bozeman, Montana (in cooperation with Montana State University)

Logan, Utah (in cooperation with Utah State University)

Missoula, Montana (in cooperation with the University of Montana)

Moscow, Idaho (in cooperation with the University of Idaho)

Provo, Utah (in cooperation with Brigham Young University)

Reno, Nevada (in cooperation with the University of Nevada)

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